

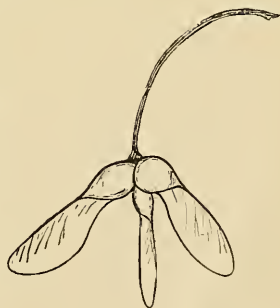
were not only decidedly more attenuated than those of the control plants and without any indication of curvature, but the stems had not the thickness of those uncovered plants that were grown beside them. While this experiment is not offered as an example of the loss of irritability, since the facts are too meager to warrant such a conclusion, it does show in connection with others that need not be mentioned, that occasional artificial illumination may have a pronounced influence upon the growth of etiolated plants. So it would appear that we must materially alter our conceptions, in many cases, at least, of the term etiolation if we mean by it the development that is possible in total darkness.

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SHORTER NOTES

A TRIPLE SAMARA IN *ACER RUBRUM*. — The double samara of the maples is an almost constant feature, although in *Acer saccharinum* L. only one samara usually matures, which is doubtless an aid to their better flight.

The occurrence of a perfect mature triple samara in *Acer rubrum* L. seems worth recording. (The figure shown herewith is three quarters natural size.) A three-celled, three-lobed ovary is reversionary, and harks back to the days when the ancestral maples had a three or more celled ovary, and probably two ovules in each cell as they sometimes do now, conditions which usually obtain in the order Sapindales. There seems to have been a progressive reduction in these parts throughout the order, which is still going on, the bulk of the Sapindales being inconstant in these features. This reduction effects a great saving in vital energies and material. It may not be amiss to take a glance at what we know about *Acer* history.



Acer is essentially a Tertiary and modern genus, although a number of unmistakable samaras have been found in the Raritan

clays of New Jersey, besides a number of leaves in parallel horizons elsewhere. Fontaine even describes a leaf under the name *Aceriphyllum* from the Potomac formation of Virginia, the affinity of which, however, is doubtful. The very abundantly preserved flora of the Dakota group contains no true species of *Acer*, although two species referred to *Acerites* have been described. Likewise the abundant flora of the Atane schists of Greenland contains no maples and the Cenomanian of Europe but one species, which is often considered doubtful, so that we may look upon the maples as a dawning type in the Cretaceous days that had long since seen the oak and tulip-tree, magnolia and holly, willow and poplar, sassafras and sycamore.

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REVIEWS

Two new elementary botanical Text-Books

Certainly the teachers of elementary botany cannot complain of the lack of text-books, nor on the whole, may the complaint be extended to their quality. And it is significant that the field covered by recently published works is common, and corresponds closely to the specifications published under the authority of the Society for Plant Morphology and Physiology, and accepted by the Examination Board of the Middle States and Maryland.

Two of the more recently published of these text-books are the "Introduction to Botany" by W. C. Stevens * and "Botany all the Year Round" by E. F. Andrews.† They are similar in scope and as no serious unfavorable criticism may be offered in regard to either, it is my chief purpose to point out the contrasts of treatment.

In the "Introduction to Botany" the approach to the subject is through the study of seeds and seedlings, a method in very general acceptance. The disadvantage of doing in this way becomes apparent in the study of the "grain" of Indian corn,

* Pp. v + 436 + 127 (Flora). Boston, D. C. Heath, 1902.

† Pp. 302. New York, American Book Company, 1903.